APARNA ALAMANDA

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EDUCATION

MEng in Computer Science and Applications Aug 2023 – May 2025
Virginia Tech | NOVA, Virginia | GPA: **3.93/4.0**
Courses taken: *Cloud Computing, Web Application Development, Intro to AI, ML with Big Data, Software Engineering, Information Security, Usability Engineering, Mobile Application Development*

B. Tech in Computer Science and Engineering Aug 2016 – May 2020
Jawaharlal Nehru Technological University, Kakinada | India GPA: **3.8/4.0**

SKILLS

Technical Languages: C, C++, Java, Python, R, PowerShell, Shell, JavaScript, TypeScript, Bash, HTML, CSS.
Frameworks: React.JS, Spring, NodeJS.
Tools, Databases: MySQL, PostgreSQL, Azure, AWS, Figma, Docker, Salesforce, Jira, Oracle, Git, Tableau, Postman.
Areas: Full Stack Development, Machine Learning, Microservices architecture, Mobile App Development, Cloud Architecture, *UI/UX,* Agile Project Management, Requirements Gathering, Automations, RESTful APIs, Database Management.

WORK EXPERIENCE

Data Analyst: Tata Consultancy Services | India May 2020 – Jul 2023

- Built and analyzed email campaigns for the Microsoft Xbox Channel Marketing team, including promotional, transactional, dashboard, survey, and onboarding campaigns.
- Developed SQL queries in the Cosmos DB database and performed various checks based on customer requirements giving data insights with suggestions on relevant campaigns that can be implemented, which helped in boosting user engagement.
- Evaluated the development of SQL queries by troubleshooting and resolving various issues encountered in the process and further drafted a mandatory checklist with the necessary checks to be followed by the team, which resulted in over 15% reduced overlooks and common errors in the deliverables.
- Designed and implemented machine learning models using Python and scikit-learn to analyze customer behavior patterns across 500,000+ user interactions, optimizing campaign targeting algorithms and reducing manual scripting work by 40%.
- Led database migration initiatives between legacy systems and Cosmos DB, creating fallback mechanisms and implementing real-time monitoring scripts that maintained 100% data integrity throughout the transition with zero service disruptions.
- Engineered multi-channel marketing surveys by developing backend data processing scripts in IRIS, orchestrating ETL pipelines to seamlessly transfer user segmentation data into SFMC, while designing responsive HTML/CSS email templates with dynamic content blocks that achieved 28% higher engagement through data-driven wave optimization

ACADEMIC PROJECTS

An Effective Text Summarization Model using Natural Language Processing

- Developed a web-based machine learning model that can automatically abridge the text obtained through documents, PDFs, and web pages to a concise summary containing the primary text's essential points.
- Built the model with Python language using Text Rank algorithm to summarize and web scraping techniques to obtain data from the provided input URL.

UniNav - Campus Navigation Platform

- Engineered a scalable navigation system utilizing React.js with TypeScript, implementing custom hooks for geolocation handling and integrating What3Words API with a self-developed geocoding wrapper, achieving <1m location accuracy.
- Architected a WebSocket-based real-time notification system using Socket.io with Redis pub/sub, implementing automatic reconnection and message queuing, resulting in 99.9% delivery rate and <100ms latency for 10,000+ concurrent users.
- Developed a hybrid recommendation engine combining collaborative filtering and content-based algorithms using Python/NumPy, incorporating user behavior analytics and achieving 85% relevancy in event suggestions through K-nearest neighbors clustering.

Enhanced Disease Risk Prediction Model

- For eight disease categories, the system predicts an individual's risk of being affected by a disease based on their medical diagnosis history.
- Implemented Random Forest algorithm with repeated random sub-sampling techniques to obtain 87.34% Average Area Under the Curve for a highly imbalanced dataset from Kaggle.

CERTIFICATIONS

- AWS Certified Cloud Practitioner — AWS
- Python Certification, Data Mining — NPTEL
- NLP using Python for Machine Learning — LinkedIn
- Big Data Workshop — JNTUV

RECOGNITION

- Received spot on award twice in June 2021 and July 2022 for proactively handling user survey campaigns and suggesting ML models for process improvement at Tata Consultancy Services.